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*Mr. Frederick. Miller
with the Author's
compliments*

ESSAY

ON

SEA COAST CROPS;

READ BEFORE THE

Agricultural Association of the Planting States,

ON OCCASION OF THE

ANNUAL MEETING, HELD AT COLUMBIA,

THE CAPITAL OF SOUTH-CAROLINA,

DECEMBER 3d, 1853.



*Robert Francis
Winters*
BY R. F. W. ALLSTON,

Planter, of South-Carolina, and a Member of the Association.

CHARLESTON, S. C.
A. E. MILLER, 3 STATE STREET.

1854.

C O P Y .

La Place, Macon Co. Ala., Aug. 27th, 1853.

ROBT. F. W. ALLSTON :

DEAR SIR, at a late meeting of the Executive Council of the Agricultural Association of the Planting and Slave-holding States, held August 12th, in the City of Montgomery, your name was proposed, and you were elected by the Council, to address the Association, at its next meeting, which takes place in Columbia, S. C., on Thursday, the first day of December next.

The subject of the Address or Essay to be " Culture of Sea Coast Crops."

An early reply signifying your acceptance, will greatly oblige,

Respectfully yours &c.

(Signed)

N. B. CLOUD,
Secretary.

West Point, September 8th, 1853.

MY DEAR SIR :

* * * * * This selection, by the Executive Council, while I am sensible that it does me unmerited honor, oppresses me with a sense of responsibility—our Statistics are so imperfect and I have been so much a home man, out of my humble public duties.

While I may be permitted to express the wish that one more able had been selected for the occasion of your interesting meeting, and am free to utter the apprehension, occupied as I will be by pre-existing engagements, that I may fail, not only of doing justice to the subject, but also of giving satisfaction to any one: I yet dare not decline the appointment, as unsolicited as unexpected * * * * *

I remain very respectfully,

Your obedient servant,

ROBT. F. W. ALLSTON.

N. B. CLOUD, Esq.

ADDRESS.

IT is good for us to be here—discussing, not “the affairs of the Nation,” but the elements of a Nation’s wealth. The education, the agriculture, the commerce of the planting States. Citizens of the several States meet in this Association to compare notes, with the mutual desire to understand the peculiar views of each, to profit by each others experience, communicating freely their own—to improve the art, and direct attention to the Science of Agriculture.

It is to be hoped that one (not the least) of the good results of these meetings will be the institution of an Agricultural and Geological Survey, in each State, by the Legislature thereof, or at least the organization of a Board of Agriculture through the members of which, analyses of soils may be procured by farmers, together with the dissemination of all sorts of information relating to soils, manures, implements and culture—varieties of stock and their treatment, the reclaiming of wild lands, and the administration of labor.

To a country populated as is ours, a thorough Agricultural Survey is replete with use and advantage. It serves to discover the best systems of culture and of management perfected by gifted individuals who may have devoted a lifetime to their establishment, to analyse, describe, and communicate them to distant parts of the State, where, possibly, they may be entirely new, and, if applicable, greatly beneficial.

The Surveyor makes it his business to ascertain the diseases of plants and animals, and unites with his own the experience and the science of all farmers in discussing the remedies applicable to them.

In this, and in various other ways, the Agricultural Survey tends to make farmers, in all parts of the State, somewhat acquainted with each other, as well as with their different practices and facilities, their difficulties and remedies.

The State of North-Carolina has ordered an Agricultural Survey, and has entrusted its execution to the experienced Dr. Emmons, who was an agent in the elaborate work in the State of New-York. He has already published a small preliminary volume as preface to his valuable labors in our sister State. In connection also, with the University of North-Carolina, at Chapel Hill, a school of Science has been established, with a Professor (C. Phillips) of Civil Engineering, and a Professor (Hedrick) of Agricultural Chemistry, who, besides lecturing on that subject has made some interesting and valuable analyses of soil.

The Agricultural and Geological Survey of South-Carolina is little more than fairly begun. The benefits which have been and will be derived from what has been done, cannot fully be estimated in terms. If they could be calculated and set down, in money, I suppose the result would be a sum sufficient to defray an hundred times over, all the expense which has been incurred for it by the State. The bringing to view and marking the local extent of the marl beds on the rivers Pee Dee, Waccamaw, Santee, Cooper, Ashley and Savannah, on Edisto Island, and elsewhere on the seaboard. The testing of the constituent value of these marls by the long practised

formulæ and ample experience of the venerable Ruffin, together with his clear explanation of and rules for the use of them, are a boon to the inhabitants of the respective localities, and to the productive wealth of the State, which no one will pretend to estimate in numbers.*

For the institution of the Board of Agriculture, by which was organized the plan of Agricultural Surveys in England, the people of that country are indebted to the wisdom and public spirit of Sir John Sinclair, the friend and correspondent of Washington.†

May not this Association constitute such a Board for the Southern States, for wise and useful ends ?

Of all descriptions of men, whose energies are actively employed in the same vocation, planters are the least given to act together in combination. A main reason for this may be found in the fact of their living segregated in the country, although sociably inclined, associating kindly, and proverbially hospitable.

Each, independent of all persons save the indwellers

* In his Report, (1843, p. 82,) Mr. Ruffin says: "The small use of the plow, (indeed its total disuse in many cases,) and its substitution by the hoe and hand labor, is, to a stranger, the most remarkable and novel feature of the agriculture of the lower Districts." This could not have been said of the Rice growing region of the lower Districts, but of the long-staple Cotton region. Even there the entire disuse of the plow is becoming somewhat more rare. Several planters, even on Edisto Island, are using the plow in the culture of Cotton as well as Corn; and its use is becoming general elsewhere.

† A descendant of Sir John visited the United States in the month of October, in the person of a Reverend Presbyter of the English Church. The Rev. John Sinclair, Archdeacon of Middlesex, who, together with the Right Rev. Bishop Spencer, late of Madras, and other Divines, was deputed by the venerable Society in England "for the propagating of Christianity in foreign parts," to attend the late triennial meeting of the Board of Missions of the Protestant Episcopal Church in this country. It was gratifying to me to make the acquaintance of this distinguished Divine, this modest, estimable gentleman. And it will be gratifying to my countrymen to know that he bore away to his native Island impressions of American character and sentiment, most pleasing and grateful to him, alike honorable and grateful to us.

and laborers of the plantation, practising there his own peculiar system, is separated from his surrounding neighbors by the recognized boundary of his broad acres. Deluded thus into a dangerous self-dependence, habitually secluded from the active bustle of life, and the frequent haunts of men, the worthy planter too often fails of exercising his share of that influence which helps to form public opinion. Not so the gifted citizen who mingles daily with the animated masses congregated in cities, or associates constantly with men engaged alike with him, in commerce, manufactures, trades or professional pursuits. If combining seldom, however, and only under the pressure of high excitement, or of threatened danger to a common interest—and if less commonly exercising individual influence—it is consoling to reflect that, whenever it may be called into active exercise, the influence of the educated planter is a sound and wholesome one.

Generally, he is conservative. Bred in the country amid the exuberance of nature, in her just proportions and distribution, his mind is accustomed to her gradual processes, the regular succession of the seasons, and the annual recurrence of the routine of labor allotted by the Creator. His gifts acquire strength, character and virtue. They may never be developed beyond his rustic sphere—never until fair occasion offer. But, when so called forth, they will be exercised for the most part conservatively, and on the side of truth. In the creation around him, even of inanimate nature,

“ He finds tongues in trees, books in running brooks,
Sermons in stones, and good in everything.”

CROPS OF THE SEA-COAST.

You have invited me to address you on "the Culture of the Sea-Coast Crops." A subject fruitful in itself, abounding in details, and sufficiently interesting to those of us whose business it is to cultivate the great staples. The information which I have been able to collect, as to one staple, together with all that I may have acquired in the culture of the other, is entirely at the service of the Association. But all the detail cannot be given here.

Both Cotton and Rice were at first grown by few persons. As they profited largely by the peculiar culture, they expended in hospitalities the revenues which accrued. Early in the present century a single estate in Georgia is said to have yielded a crop (600 bags) of Sea Island Cotton worth \$100,000 and upwards. Rice has been known to command a ready market at thirty shillings per cwt. The planter, in those distant days, who made good crops, doubled his capital in a few years. I had the statement from the planter himself, that in one of those years the proceeds of the labor of each worker, on one of his plantations,* enabled him to add another laborer to his estate. During the war of 1812, a good deal of salt was made on the seaboard. It commanded, a year or two after the war, \$6 a bushel!

These monopolies have no more any existence. They are now matters of history merely. In republican compensation, the same causes which have reduced the profits of the few, have tended to equalize with them the incomes of the many.

* Waterford, a small plantation lying in the best pitch of tide on Waccamaw. It belonged at that time to the late Benjamin Allston.

Of Salt, an article of necessary consumption, which had been manufactured on our coast more than a hundred years, there are now, none so poor to "boil a kettle."

Of Cotton, the culture far from being confined to Georgia has been extended over the fertile region, embracing with the exception of Maryland, Virginia, Kentucky and Missouri, the Southern and South-Western States. And in the production of Rice both the Carolinas, Georgia and Louisiana, are engaged. It is grown for domestic consumption in Mississippi, Florida, and Texas, and nearly every where else where may be found a settlement of negroes who once lived in the rice region of country.

The sawing of lumber—farming and distilling turpentine, are now the most profitable kinds of business near the seaboard and out of the city.

They are not considered favorable to the steady habits of the negro; but they yield very tempting incomes, varying from three to six hundred dollars to the hand.

Over the bar of Georgetown alone, a single port in South-Carolina, the lumber and naval stores which passed out during the last fiscal year, it is computed, exceed half a million of dollars in value. The quantity exported is steadily increasing.

Cotton.—The crop most largely exported from the United States is Cotton. It pays for two-thirds nearly of the imports—the basis of Federal revenue.

This important staple, the peace-maker between Europe and America, is the chief product of the industry of the States furnishing the constituency of this Association.

Cotton,* long known to the world, has been grown and worn in the East for centuries. The application of machinery to its manufacture, imparted a decided impulse to the culture of the raw material. But it remained for the invention of Whitney's† saw-gin to remove the chief difficulty in the way of its production in America—a production now limited only by the wants of mankind.

Amazing as has been the progress of the growth of Cotton in America, the population, almost, and the commercial prosperity of the United States have kept pace with it.

I will not more than allude to the exports of the year 1791, in comparison with those of 1851—sixty years after. (In money value they are as \$52,000 to \$112,315,317!) Nor will I offer the reflections suggested by such a comparison. Some other mind will do this service more appropriately and ably. They are replete with instruction as well as interest.‡ For the benefit of States as well as individuals, we are warned that “To whom much is given, of him shall much also be required.”

* Mr. William M. Lawton of Charleston, has in his possession a sample of Cotton, (produce of a single pod) which was plucked from the tree in its wild state, growing in the Island of Cuba. The tree is said to bear about three years—the staple, of course, is inferior.

† Whitney's invention was patented in 1793. There is now on exhibition, at the World's Fair, in New-York, a model of the original Saw-Gin. Class 5 and 6, No. 166. The model is owned and exhibited by his son, Eli Whitney, of New-Haven, Connecticut, where the remains of the ingenious inventor lie buried. He died January 8th, 1825.

‡ The comparative distribution of the general crops of Cotton, for ten years past, must not pass unnoticed. It appears (*N. Y. Journal of Commerce* and *Hunt's Merchants' Magazine*, Nov. 1853) that from the years 1843-4 to 1852-3, while the Cotton crop has increased from 2,124,895 bales to 3,354,058 bales, the consumption of Great Britain has diminished in the ratio of 56.50 to 51.78—that of France as 13.30 to 12.72—that of the North of Europe has increased in the ratio as 3.25 to 5.19—that of other foreign ports as 3.54 to 5.77, and that of the United States as 16.32 to 20.59 per centum.

The variety which is cultivated on the sea-coast was introduced into Georgia first. Removed from the influence of a salt atmosphere it degenerates, and the staple becomes inferior. The region in which it is produced extends from the River Santee, in South-Carolina, including the Parish of St. John's Berkley, to the everglades of Florida; embracing a belt of land some twenty to thirty miles wide, measuring from the Atlantic.

The crop of 1852 may be set down at 34,000 bags:

The receipts in Charleston were,	19,843 bags.
“ in Savannah,* -	12,971 “
besides several hundred bags, say	1,186 “
(which were sent directly from Florida to New-York and New Orleans)	
	<hr/> 34,000 bags.

Out of which quantity, it is estimated that 4,000 to 5,000 bags were furnished by the State of Florida.

Judging from the quantity of land recently cleared in Florida, and the comparative success which has hitherto repaid the enterprising cultivators of long staple Cotton in that State,† it is estimated that the crop of Florida, if not the present year, will very soon equal that of Georgia in quantity.

* See Appendix A. for a Letter received after the foregoing statement was made up.

† The planters in Florida have fresh lands not yet infested with bugs and insects. They use the plow extensively, and find it no damage to the plant. They have the salt air breathing its peculiar influence from the West, on a part of the Peninsula, as well as from the East. They have, too, domesticated among them McCarthy's Gin.

They must succeed with this Cotton, it would seem, unless they yield to the influence of the climate ultimately, and let the Cotton tree grow for their crop.

The people of Florida, as well of Southern Georgia, should forthwith begin to plant the Olive. Plantations of the Olive tree will interfere very little with the general crop until they yield largely of fruit. They will succeed in Florida when the Cotton lands shall be worn out.

Sea Island Cotton.—In treating this subject, without presuming to enter on the field which has been so thoroughly traversed and completely occupied by the distinguished President of the State Agricultural Society, I will only venture to add such gleanings as I have been so fortunate to make in Georgia and elsewhere, together with some few results which have been obtained in Carolina, since the writing of that elaborate and able essay, to which I beg leave to refer.*

The soil best adapted to the production of fine Cotton is a light yellow, sandy soil. It bears well the admixture of salt and marsh mud with the compost applied to it, and yields, if fairly dealt by, a fine, long and even staple.†

The better practice is to prepare the land by listing in the remaining growth, as soon as the last year's crop has been picked—even before the Cotton has been cleaned for market. The alleys are then broken up with the plow. In the spring, the earth, well manured, is drawn up with the hoe, making a bed upon the autumn listing, and the seed is sown in dibbles, a peck to the acre, or more, according with the strength of the soil, &c.‡ After the seeds germinate, the alleys are

* Memoir on Sea Island Cotton by the Hon. Whitmarsh B. Seabrook, President of the State Agricultural Society, and recently Governor of South-Carolina

I take leave here to acknowledge the favors which I have received, in the way of information, freely and kindly given, both as to Cotton and Rice, from Dr. Scriven, Messrs. Waldburg and Habersham, of Georgia; from Messrs. William Seabrook, William M. Lawton and John F. Blacklock, of South-Carolina.

† The usual compost is prepared in summer by mixing with farm-yard, cowpen and stable litter, salt marsh, marsh mud, and even salt. It is applied to the land in winter at the rate of forty, fifty and seventy cart loads.

Mr. Townsend, of Edisto, does not depend on the "cart loads," but covers his land well with the manure.

‡ In order to ensure the production of fine Cotton, the seed must be carefully selected, and well attended to. Owens' Selection has, at present, a high reputation. Mr. Geo. C. Owens has given name to the seed, as Mr. Kinsey Burden did to his in 1826-30.

again broken up with the plow, and soon the process of thinning begins. With the three first hoeings, the plants are gradually thinned out to the stand of a single stalk, eighteen, twenty or twenty-four inches, or more, from its neighbor. The ground must be kept clean throughout. The quantity or rate of planting, when the hoe is altogether used, does not exceed three acres to the hand; and the task is one-fourth of an acre (105×105 feet.*) If the plow and scraper be used together with the hoe, much more may be accomplished, the hoe drawing up to the plants the earth loosened by the plow, the task may be three-fourths of an acre. Where the plow is used freely, seven acres to the hand may be tended, as in Florida, and perhaps on Santec. But, on this scale, the manuring must be neglected, or only partially done. In Georgia, my informant,† who uses the plow and scraper, plants five acres to the hand, in order to keep his land in good heart by manuring. For the same reason a very successful planter on Edisto,‡ tends but five acres to the hand. He uses the plow freely, manures well, and makes a good interest.

The effects of the autumnal gales, so unavoidable, are sometimes disastrous to the ungathered and ripening crop.

Among the diseases to which Long Cotton is subject, blight, rust and "blue,"§ may arise from some defect in

* Among Cotton planters, on the seaboard, the acre is laid off square, two hundred and ten feet (210×210) being made up of four squares of 195×105 feet = 44,100 square feet.

† Mr. Waldburg.

‡ Mr. Townsend.

§ Dr. Bachman suggests that these diseases may be due to some minute insects. The suggestion is worthy the attention of microscopists.

If they will be attentive to the instructions of this distinguished Naturalist, Cotton planters cannot fail to derive from his scientific investigations, and practical suggestions, hints which may lead them to discover the causes, and likewise the remedies, of many diseases to which the plant is now a prey too often.

the soil, which, doubtless, may be removed, or partially remedied by proper dressing, at the proper season, together with thorough draining—for caterpillar and the bug there is no certain remedy but propitious seasons—unless, indeed, it be found in a judicious rotation of crops, and naked fallows, the ground being well broke up and exposed to winter frost. When about to be attacked, however, defend your plants by all the means within your reach. Destroy the enemy in embryo, as the energetic planter, last alluded to, has shown can be done.

PREPARATION FOR MARKET.

It requires from fifty to sixty days to prepare a bale of fine Cotton for market.

1st. The seed-cotton must be sorted for the gin, i. e., the dead leaves, and every thing extraneous is picked out say sixty pounds to the hand.

2d. It is then passed through the roller gin, which relieves it of the seed. The common foot gin or treadle, propelling two rollers, is the machine commonly used for separating the fibre from the seed, cleaning on an average twenty-five pounds a day. The McCarthy, or Florida Gin, with one roller, is now attracting much attention; and the planters are putting them up as fast as they can procure them. A gin, costing one hundred dollars, propelled by a good horse or mule, or still better by steam, will clean from 150 lbs. to 200 lbs. a day.*

3d. The Cotton is “moted” as it comes from the

* Mr. McCarthy, of Florida, took out a patent, in 1840, for a gin having one roller, say four inches in diameter and three feet in length, dressed with leather arranged spirally around it. This roller revolves over and in loose contact with a plate of sheet iron. The Cotton is received and drawn in between the two, and the seed is separated by means of a thin steel bar placed horizontally, and operating vertically in front of the roller, and with great rapidity. By the use of this machine, not only is the saving of labor considerable—a one horse power machine will gin as much Cotton with one hand to feed it, and may be an inefficient hand otherwise, as five old gins with each a hand—but the seed is found

gin, namely: all particles of broken seed, and every speck which may have escaped detection in the "sorting," are carefully removed. Thirty pounds to the hand are moted after the foot gin, sixty pounds after the use of McCarthy's patent, or in such proportion.

4th. It is then packed by hand in the old fashioned round bales, containing each 320 lbs. to 400 lbs., of clean merchantable Cotton.

The finest Cotton is exceedingly delicate in vegetation, and requires careful handling throughout. It can

to be less crushed than it was by the old fashioned roller gin, requiring, of course, less moting manipulation.

Strange to say, an invention of so much value to our planters on the coast, has remained almost unknown in Carolina until a year ago, and unused by steam until the present year. To Mr. Wm. M. Lawton, to whose kindness I am indebted for this description, is the credit due for bringing it to light in this State; and Mr. Wm. Seabrook, I believe, was the first planter who ventured to use it in the preparation of his crop, a sample of which, in all its silky fineness, he has sent to the Industrial Exhibition at New-York. This gentleman not content with the determination of his own sound judgment, supported by that of his immediate friends, as to the effect of this new mechanism upon the staple of fine Cotton, has, yielding to the promptings of his enlarged views and thorough practice, invited thereon the verdict of the consumer of the raw material. He has caused a bale of his last crop to be prepared by this machine, and one of the same fine Cotton to be prepared after the old method, and to be shipped on his own account to the habitual spinner in Manchester, for the express purpose of testing by his practised judgment the relative value of the staple prepared in the new and old way. This test, as far as it has gone, has resulted unfavorably to the new gin. The spinners think that Cotton prepared by it, has rather a greater tendency to "nep", and they suggest a caution against using it for cleaning the finest Cottons.

We find the following letter in the *Savannah Republican*, which we copy for the information of those engaged in the cultivation of Sea Island Cotton:

"LIVERPOOL, Aug. 18, 1853.

Gentlemen,—Since my arrival in Great Britain, I have had much intercourse with the spinners of fine yarns, in Lancashire and Scotland, and it will interest you to know that they are generally impressed in favor of the Sea Island Cotton they have been receiving from Savannah. The Florida Cottons they particularly refer to as possessing every essential qualification, except cleanliness; this deficiency, I was apprised on all sides, would weigh gravely against the appreciation of Florida descriptions in the future crop. And the reasons adduced were so forcible, that I am quite sure I shall do service to every intelligent planter by giving them publicity.

In the first place, they say that the per centage of loss by crushed seeds and

only be produced, therefore, in small quantities; and then, unless everything be propitious, it does not pay too well, The cost of producing a bag of ordinary Sea Island Cotton is about \$75,* that of the finest twice as much.

Prices.—In 1851, in Charleston market, fine Cottons were sold at 60 cents per lb.—a single bag commanded 70 cents.

In 1852, fine Cottons sold at 80 cents, per lb., only a bale or two brought more, (85 cents.)

Ordinary Sea Island Cottons commanded in Charleston,
In March, 1851, 30 cents per lb.

“ 1852, 30 cents per lb.

“ 1853, 43 and 45 cents per lb.

stained and dead Cotton, at present prices, is a prominent obstacle to the use of carelessly prepared lots; but a still more serious impediment is found in the fact that in the present nice position of the labor question, the operatives, who are now all paid by what is called piece work, are independent enough to decline working upon illy prepared Cotton, out of which they cannot get as large a weight of fine yarn per day as they can out of clean sorts. This is the secret of the present absence of demand for the lower descriptions of Sea Islands, and it is not difficult to predict that a wider difference in price will exist in the Savannah and Charleston markets next season, between dirty and clean Cotton than has before been known.

Complaints have not been wanting against not a few of the Liberty and Bryan county crops, which are represented as harsh and dry in staple. Manure and change of seed are the obvious remedies for this defect. On the other hand some of the crops raised but a mile or two from the end of your plank road, where care has been had, have been pronounced equal to some of the favorite island brands.

I may add that of all the preparations of Cotton sent forward from Savannah, the open fleecy sorts from the McCarthy Gin have given most satisfaction, promising always that the Cotton is clean. Some of the lots I have seen here, prepared in this way, had minute particles of shell and leaf so incorporated in the Cotton that its usefulness was considered greatly impaired.

A small portion of one of the finest island crops in South-Carolina, comprising two or three bags, put through the McCarthy Gin, was recently sent to the mill of one of the largest spinning concerns in Manchester, and there placed in comparison with the remainder of the crop ginned in the old way, and the report given me by the manager was, “the open Cotton is exactly in the condition we require to bring it to for our work.”

I am, gentlemen faithfully yours,

Z.

* This has reference to Cottons produced by the hoe culture without the plow.

The planters are few who make the finest Cottons, some, eight or ten, perhaps, in Carolina, planting a small portion of their lands in the choicest seed, which has to be selected with great care from year to year.

These Cottons are taken by England and France, chiefly through the ports of Liverpool and Havre. England receiving the larger proportion, re-exports a part of her supply to the Continent, (Switzerland and elsewhere,) where it is manufactured into exquisite laces and muslins. A few hundred bags of Sea Island Cotton are manufactured in the United States, chiefly in making spool cotton. A pound of Sea Island Cotton may be spun so fine as to produce a thread of incredible length. Yet Prof. Mitchell, of the Cincinnati Observatory, stated that no thread, of any kind, which he could procure, was equal in fineness, lightness, and elasticity to that of the spider's web.

The Cottons that will command from 45 to 68 cents per lb., made with the proper use of the plow, and cleaned by the improved machinery, yield a very handsome interest upon the capital invested, say not less than from ten to twelve per cent. Fourteen per cent. was realized last year by more than one planter.

PROVISION CROP.

Of all the various callings to which men in the low country resort for a livelihood, all, except the transient turpentine farmer,* raise a provision crop of Corn, Peas and Potatoes. Even the timber-getter, whose lumbering gigantic wheels require a goodly number of stout

* The man who hires laborers annually for the purpose, the Railroad contractor also, who hires male laborers only, for his work. Neither employment exercises wholesome influence on the habits of the negro.

oxen for the heavy draught, while these are recruiting on the summer pastures of his native pine-barren, will put his horse to the plow and work out provision for the ensuing winter.

The hunter, too, who ranges now for game farther and wider than erst he did, over natural meadows* upon which his stock of cattle luxuriate in summer, and through thick wooded swamps, where they seek shelter and forage during the hard weather of our brief winters. The hunter and his sons employ a part of several days in the week, during the proper season, in weeding the potato patch, and tending the corn and planting the slips and the peas, whilst the industrious wife, and thrifty, home-bred daughter, ply the spinning-wheel and hand-loom, to work up their own garden crop of Cotton with the coarse fleece of their native flock into comfortable jeans and flannels for the household.

CORN—(*Zea Mais*)—*Maize*.†

The land for Corn is seldom disturbed until near the time for planting, though it will not be doubted that the farmer would find profit in breaking up his land during the frosts of winter. It is laid off with the plow in drills, usually five feet apart, and the deeper the better. These drills, or furrows are filled with the litter from the stables, and the farm pen, and whatever else of vegetable matter may be at command, (the Rice planter uses rice-straw for this purpose.) They are then listed

* Large tracts of prairie called Savannas, which in May, June and July abound with the finest grass pasture, and at times are richly varied with beautiful flowers.

† See Report "on the Culture of Indian Corn," made to the Winyah and All-Saints Agricultural Society, 20th April, 1848, by the Hon. J. R. Poinsett, for a full account.

in or covered up with either the hoe, or the plow—sometimes with both.

The Corn which is planted towards the last of March, is dropped (3 or 4 grains in one spot, to be thinned out, after healthy and vigorous vegetation, to one plant) in dibbles made upon the ridges thrown up as above, 3 or 4 feet apart, depending upon the producing power of the land.* Some farmers sow Corn as close as $2\frac{1}{2}$ feet and even 2 feet. This, however, requires very strong land, enriched by manure. In general, it is not wise to plant thick; the field in full growth may be more promising and pleasing to the eye, and may produce more fodder, but less sound, heavy grain.

For the most part, this crop receives three plowings, and one hoeing, if the hoe can be spared. When in its tender state it is thinned out to one stalk. In the month of June it is thoroughly cleansed and laid by with the hoe, when Peas are sown in dibbles upon the ridges, midway between the Corn plants. This is done at such precise time as to allow the peas to vegetate and appear just before the Corn tassels. When the grain is sufficiently filled and hard, the blades of the plant are stripped and cured for forage. The fodder makes excellent food for horses, but the work of stripping is one among the least inviting and healthful to the laborers. Soon the dying stalks, no longer obstructing the rays of the sun from the lowly legume, are covered by the running pea-vines, which when in blossom, and when with full pods pendant from every stalk, present the field in an aspect rich and abundant in promise.

* It is becoming a common practice to roll the seed Corn in a solution of coal tar, before planting it, in order to protect it from birds, &c.

When gathered, Corn should be put up with the inner shuck on, in a house well ventilated, as open to the air as is consistent with the protection from damp.

On good farms the production of this grain is at the rate of 20 to 35 bushels per acre. A leading Waccamaw planter has repeatedly averaged, on thirty acres, fifty bushels per acre and more.

Any soft Corn planted near the sea-coast tends gradually to become flinty.

Higher latitudes, and especially western lands, are better adapted to the production of Corn, yielding less wood, and more grain.

In the State of Indiana, for example, a crop has been obtained, much larger than ours, with a single plowing. A stand once secured, the weeds are suffered to grow up in common with the plant. Both mature, in nature's good time, when as much Corn is gathered as may be needed for the grainary,—the remainder is fed off to stock on the field, where it has been grown.

OF POTATOES,* (*Convolvulus*.)

The land is prepared in like manner as for Corn. On rice plantations instead of straw the "tailings" are used for Potatoes, viz: the finer particles of the straw produced by threshing out the grain, and separated by the process of winnowing, or fanning the grain clean, to be pounded. As on well managed farms these two crops are produced from the same ground, alternately; or in the order of rotation with Cotton—the land is laid off the same distance for both, whether it be 5 or $4\frac{1}{2}$ feet,

* For the elaborate and able Report by Dr. J. R. Sparkman, "on the Culture and Preservation of the Sweet Potatoe," see the Proceedings of the Winyah and All Saints' Agricultural Society, 18th April, 1850.

so that the beds, or ridges may be reversed every year. This preparation with Rice Planters is made by listing in the tailings in the month of February. The land lies thus until a convenient time for planting, somewhere about the last of March, when the earth on both sides is drawn up on the listing, so as to make as large beds as the ground will readily admit of. On the top of these beds, trenched for the purpose, the Seed Potatoe is dropped 6 or 8 inches apart, either whole or cut into two parts, as the quality of seed will allow, or require. The trench is then covered with earth, and the seed left to vegetate. As soon as the sprout appears above ground, the work of cultivation begins, and it must be constantly, and diligently followed up; or else disappointment will ensue as to the result.

The fine grass which makes its appearance with the Potatoe must never be suffered to take deep root, but must at once be shaved off with the hoe—and picked out by hand, so as to be entirely destroyed. As fast as any more grass, or weeds make show, they must in like manner be removed, while young, and growing only on the surface. If either be suffered to take root, loose, and rich as is the earth of the beds, their roots soon penetrate deep, and spread, when they can no longer be removed without disturbing the incipient growth of the young tuber, if indeed it be not pulled up altogether in extracting the weed. After hoeing, a good rain is the signal for breaking up the earth between the beds, and drawing it up with the hoe to the top of the beds, carefully around the plants. Upon this the vines shoot forth, and very soon cover the beds, shading the ground effectually, and thus preventing a new crop of grass.

This is the “root” crop. It is dug from September to

November inclusive, and yields from 150 to 250, and even 300 bushels per acre.* The more productive crop, ordinarily, is that from the vine, or slip.

Thus the land intended for Slip Potatoes is generally sown down with Oats† as a winter crop. These are harvested in June, by which time, Potatoes, if planted in rich ground, and kept clean, will have shot out vines, long, and abundant enough to cut for planting slips. The Oat stubble is listed in four and a half feet apart, (in order to alternate with Corn next year.) Upon this listing, the plows throw four furroughs, then the hoes come with the first rain, and make up a good bed, flattening it on top. Along the top of these beds are carefully laid together three or four, or more, succulent vines, which are covered at the distance of sixteen, or eighteen inches, with a good hoefull of earth, leaving interval enough open for the leaves of the vine to breathe. Keep these clear of grass, and well earthed up, if

* A Proximate Analysis of the the Sweet Potatoe made by Emmons, and given in the Report of the Agricultural Survey of the State of New-York, is attached, in order that it may be compared with that of Prof. Sheppard, reported in the Proceedings of the State Agricultural Society of South-Carolina, and in order also to invite the attention of Farmers to the other Analyses furnished by both these valuable works.

PROXIMATE ANALYSIS OF THE SWEET POTATOE.

Starch,.....	19.955
Sugar, and Extractive matter mostly Sugar,.....	5.80
Dextrine,.....	0.750
Fibre after boiling in a weak solution of Caustic Potash,.....	1.850
Matter dissolved out of Fibre by a weak solution of Caustic, } Potash,.....	2.100
Abumen,.....	5.900
Casein,.....	1.050
A body that resembles.....	0.225
Water,.....	69.515

† After the middle of January, Oats may be sown (1 bushel per acre) in a light furrow, made by the plow; the sower following the plow with seed, and the earth from the next furrow covering the grain.

washed by heavy rains, and the new vines will soon cover the face of the earth. If the soil be rich, and the planting be made in June, 300, 400, or even 500 bushels of Potatoes per acre, may be produced for winter use, depending upon the nature of the season, and the lateness of frost. The lightest frost will affect the vines, and effectually check the further growth of the tuber. The manifest effect of frost upon the vines, is the signal for gathering the crop. The alleys between the beds are filled with straw from the threshing-yard. On the first fair weather, the Potatoes are dug, and the straw covered up by the digging, soon decomposing, manures the land for the next succeeding crop of Corn. The Potatoes after remaining in large heaps on the field, protected by a covering of straw and earth, until the whole be dug, are housed* for winter use; the smaller roots being selected for seed, and carefully housed to themselves. The hogs are now turned in to feed upon the unearthed roots, and those which have been unavoidably covered over in the digging, with earth, and straw together. Before another season for planting arrives, the hogs, besides furnishing the usual supply of Pork and Bacon, will have given the field, by rooting after Potatoes, which their keen sense of smell traces out, the best kind of (not deep) subsoiling.

A good rotation course is, after the crop described above, to take two crops of Corn, then graze, then a crop of root Potatoes, then Oats, and slips as just described, and so on.

The late lamented Ward, who confessedly stood

* The house is built of good plank, with walls four feet high, covered with a tight shingle, or thatched roof, on a dry well drained spot,—from 40 to 100 feet long, and from 15 to 20 feet wide, with ventilators, allowing the escape of the hot moist air, and gases from within, but not admitting the ingress of cold frosty air from without.

foremost among Planters, was in the habit of dividing his upland into two portions ; planting them every year alternately, in Corn and Peas—Oats and Potatoes. His crop of Corn seldom measured less than fifty bushels to the acre—his Slip Potatoes yielded six and seven hundred bushels, and sometimes more to the acre.

ALLUIVAL LANDS.

Of the large quantity of land uncultivated in the the Carolinas, in Georgia and Florida, a good portion of the alluvial Swamp is destined to be reclaimed and converted to the farmer's use.

None of the Swamps on the great rivers in those States are under profitable cultivation, which only can be permanent, except those which, having been reclaimed, are protected by dams (*levées*) from the destructive influx of heavy freshets to which those rivers are annually subject. Leaving out of view, for the present, the tide-swamp, the Cotton plantation nearest the Sea-coast which has been damed on the Pee Dee, is Mr Gibson's near Marr's Bluff, where the Manchester Railway is to cross. That on the Santee belongs to Mr. Mazyck Porcher, and lies near, a little below the Santee Canal.

Doubtless there are many points upon these rivers and others as susceptible of like improvement, which would repay the labor, if the right plan of constructing *levées* be pursued. Col. John N. Williams' dams on the Pee Dee have withstood many floods, including those of the last two years.

There are many inland Swamps, bordering on the tide-water country, from the Neuse to St. Mary's—(perhaps farther) sources of short streams, capable of being drained, and ultimately tilled ; which contain not

only thousands of acres of land suitable for Corn, small grain and meadow grasses, but also an abundance of excellent timber,—some white oak, as well as cypress and ash. Among these, I may mention the immense tracts bordering on the Lake Waccamaw, the beautiful reservoir into which are emptied the floods of the adjacent low lands, to be discharged gradually into the bold river of the same name. This Lake, in North-Carolina, some five miles long, by about three miles wide, is surrounded by dense forests of Swamp abounding in timber, which all will be brought into market, or domestic use, whenever the lands shall be drained for cultivation. The white marshes too, through which meanders a small stream tributary to the Waccamaw, although they could afford no timber, could be reclaimed, and would seem to offer to the enterprising Planter, the temptation of a boundless field.

Let us revert to the time, not more than a century distant, when Indigo was grown in Carolina, for exportation.

The now fruitful Rice-fields of Santee and Pee Dee, and Waccamaw, which bear in grain such teeming tribute to productive wealth, and which, in extent of cultivated level, stretched out, in the direction of the ebbing current, beyond the visible horizon, were then but dense, and dark, interminable Swamps, the home of the owl and the alligator. Tide swamps they were, the soil of which though very rich, was useless to the residents and settlers of that day.

If some active proprietor, desirous of converting it to his profit, was hardy enough to plant in Corn, an occasional knoll, more elevated than the rest, the loss of Corn and Pumpkins, two years out of three, deterred his

neighbors generally, from following his example. In periodical addition to the alluvial loam, the shaded surface was enriched by the ultimate decomposition of the annual fall of leaves from the deciduous forest, extending miles across, from river-bank to river-bank. These leaves were often covered up entirely by the deposits of freshets, freighted as they were with the disintegration of rocks above, and the debris of marl-beds below the falls.

The spring-tides also of the summer solstice, seldom failed to bring their contributions of silt from the muddy bays and creeks of salt-water. Lifted by angry waves and held suspended, this silt was borne along with the current of brackish water, sometimes far inland.

When these two causes operated in conjunction—namely, when a heavy freshet from the high-lands was met by muddy gale-tides, welling up from the salt estuary below, the deposit precipitated was much deeper at the meeting of the waters.*

The extensive forest once sustained by this alluvial formation has disappeared as far up, almost, as tide-water flowed then. Thousand of acres of this same Swamp on each river, may now be traversed, and not a stump be seen above ground. The Swamp has been reclaimed. The tide is shut out, subjected to regulation, and rendered tributary to the enlightened designs of the Rice Planter.

The numerous Islands of which this region is composed are all enclosed (leaving an outside margin twenty to thirty feet wide) by dams high enough and strong, to

* See Report to Committee of Patents on Rice, 1852, page 88, for a notice of the deposit on Santee (over 2 inches) in 1845.

resist the highest spring-tides. The entire area is divided into "squares" or fields, containing twelve to twenty acres each, by a series of check-banks, made up by excavating all around the field, at a distance of eighteen feet from the center of the line on which the bank is to be located, a ditch some six to eight feet wide, by five feet deep.

The fields are further prepared for cultivation by excavating from ditch to ditch in one direction, a number of smaller ditches, called "quarter drains," fifteen to eighteen inches wide, and three feet deep, located parallel to each other, at the distance of seventy-five, or fifty, or thirty-seven and a half feet apart, as may be required by the nature of the land, and the pitch of tide in which it is found. Across the frontier bank, and in a line with one of the main ditches, a deep cut is made, in which is placed and covered up, a (wooden culvert twenty feet long, and open, four feet by two) "trunk," furnished at both ends with a sluice-gate, for either admitting the tide over the field, or withdrawing it as may be desired.

Thus has the tide-swamp been subdued, and converted into flourishing fields, inviting diligent husbandry. The owl has fled to some far off wilderness, and the alligator hides his diminished size at the first sound of human approach.

Sailing up one of those fruitful rivers, the traveller may now behold many miles of serpentine embankment, (continuous save where a water thoroughfare occurs) enclosing thousands of acres, checked into fields, which bear in waving luxuriance, crops of this translucent grain.*

* Rough Rice as it comes from the field is translucent in a degree sufficient for an experienced eye, when holding a head or sheaf of Rice up toward the Sun, to detect the red-rice, which is opaque.

OF RICE—(*Oryza Sativa*.)*

Rice, for which we are indebted to the Island of Madagascar, was introduced into Carolina and America at once, towards the close of the seventeenth century. A few grains were sown in the garden of Landgrave Smith, the site of which is now entirely covered by houses and modern improvements, in the City of Charleston. Those few grains produced many ears, which being disseminated for seed, succeeded in adaptation to the climate; and the low country of South-Carolina since, has become the centre of the rice-growing region. The first seed was white, such as is grown in China and Guiana to this day, and such as may still be seen produced on the uplands and inlands of America.

Sometime before the Revolutionary war, the “gold seed” Rice was introduced,† which, owing to its superiority, soon entirely superseded the white. It is now the rice of commerce, and the only grain referred to herein, when rice is mentioned, without being distinguished by some peculiar name, or characteristic.

This “gold seed” has undergone improvement in latter years. Hence has resulted the production of a variety longer in the grain, but not perceptibly larger otherwise, which is highly esteemed by foreign consumers, when it is produced in perfection, commanding the highest prices in market. It is called “long grain” Rice.‡

* See Appendix B. for a notice of the wild Rice of Minnesota.

† From what precise quarter, and how, has not been accurately ascertained.

‡ This peculiar grain, so eagerly sought out in the market at any price, when strictly prime, and so trying to the planters' skill, perseverance and judgment to produce in perfection, was obtained from the sowing of part of a single head on the plantation of the late Hon. Joshua Jno. Ward, of Waccamaw. Its appearance has only been accounted for thus: one of his friends, a planter on the Pee Dee, having a large body of forest land, had been in the habit of clearing a small por-

The white Rice of the present day measures three-eighths of an inch in length, the same in circumference around its shorter axis, the grain being in shape an irregular elipsoid, and in weight numbers nine hundred and sixty grains to the ounce (Troy.)*

The gold seed, the Rice of commerce, measures three-eighths of an inch in length, the same in circumference, and in weight numbers eight hundred and ninety-six grains to the ounce.*

The long grain Rice measures five-twelfths of an inch in length, three-eighths of an inch in circumference, and in weight numbers eight hundred and forty grains to the ounce.*

tion every year or two since the year 1823. He spared no pains, nor expense, in getting the best seed to sow in this clearing; and for ten or twelve years after, the best seed of the last product, specially culled, was with diligent care selected for the newest field.

The result of this judicious and consistent attention, was the appearance in market of Seed Rice, which became notorious for its purity and soundness.

Some years ago Col. Ward supplied his plantation with the seed of this Pee Dee plant. The winter after, while threshing out the crop produced from it, his overseer, Mr. Thompson, called his attention to a few grains of uncommon length, being a fraction of a broken head, which he picked up in the barn yard. Directing it to be carefully preserved, he had it sown in the spring, and nursed under the immediate inspection of the overseer. From these few grains, reproduced and replanted, year by year, and preserved through the many difficulties and disasters of several years, is derived the fancy "long grain" Rice. For Col. Ward's letter on its origin, see "Proceedings of the State Agricultural Society." Report on Rice, 1843. pp. 55-6.

* The specimens which have been compared, and which are now before you, are all the production of the same plantation, Nightingale Hall, Pee Dee. The seed of each variety (there is but one species, several varieties) is more or less polluted with a degenerate grain, the same for the most part in size, and in color of the chaff, as the original, but red within after being hulled, and much harder to be cleaned in the pounding mill. This corruption of the grain is supposed to have been occasioned by its continuous exposure in the fields, after the harvest-home, to all changes of weather and temperature, also from long submersion in the water of the ditches. It is called "red" or "volunteer Rice." The seeds resting upon the surface, or slightly covered near it, vegetate earlier than the seed regularly sown for a crop—those somewhat deeply covered by the soil vegetate later. Both, the one and the other, however, mature before the crop rice, rather

The system of culture for one is suitable for any of these varieties. The first, it is said, will bear upland culture better. The last (long grain) it is supposed, will bear water better. It does not tiller as much, shoots up a taller stock, and longer head, but does not bear as many grains to the head as the other, and more commonly approved kind of gold seed.

We begin the preparation for a new crop by (cleaning out the ditches every third year; the drains are cleaned out every year, after plowing) plowing the land as soon after the harvest as the fields can be gleaned, and the scattered rice, left on the surface, be sprouted. The stubble is turned under by running a deep furrough, say eight inches.* This may be continued until the end of January. The sods should have the benefit of the entire winter frosts, if possible, the influence of which disintegrates and prepares them duly for the leveling.

In March; or when about preparing to plant, the harrows will be made to pass over the plowed ground.† The hoe follows to cut up and break the remaining clods and level the surface. The more the soil is comminuted, and the surface brought to a common level, the better. The trenchers then come in with hoes made for the purpose, and trace out with great accuracy, the drills

than after. There is a kind so vicious and degenerate that it can never be gathered, except when immature. As soon as the grains ripen, they drop in the field, being dislodged by a puff of wind, or a touch of the hand. Hence it is sometimes called "drop-rice."

* Both plowing and harrowing are performed, ordinarily, by oxen—two yoke being required if we go deeper than six to eight inches; and two yoke get on badly in the swamp. The Tuscany breed furnishes the best oxen for our climate.

† After deep plowing the "plow turns" should be broken up with the spade, sinking the spade as deep as the plow has gone, say eight inches; an able-bodied man will break up in this way, and thoroughly, a surface of fifteen hundred square feet in a day. The field should be well drained however.

in which to sow the seed fourteen, thirteen or twelve inches apart from center to center. They will average (some drawing stake-rows, and others filling up the pannels) three quarters of an acre to the hand, in day's work.*

The field now in high tilth, and resembling somewhat a garden spot, is ready for the seed. The sowers, with great care, yet with wonderful facility and precision, string the seed in the drills, putting two and a half, or two and a quarter bushels to the acre. The labor of sowing depends so much upon the state of the weather, whether windy, or moist, or otherwise, it is better not to require any given task. Generally, each woman will accomplish two to three tasks† and do it well—it should never be done otherwise; for the seed cannot be recovered if too thick, nor if too thin, can the sowing be repeated without needless waste and increased irregularity.

The best hands are chosen to sow Rice. In fine April weather it is pleasing to behold the steady, graceful progress of a good sower.‡ The sowing done, water

* When the land is new, the trench should be broad, say five inches, and the rice may be scattered in the trench; but for old land, and most of rice-land is now old, narrow trenching hoes are preferred, opening a drill three inches wide. Infected with grass-seed and volunteer rice, old land requires close hoeing, and every seed that vegetates outside the drill is cut up and destroyed.

† The task in the Rice region of South-Carolina is (150' x 2 feet) a half acre. This is the unit of land measurement among the negroes, and with practical planters. The acre, which is a rectangle (300 x 150 feet) made by two square half acres, contains 45,000 square feet.

‡ It is a good plan to make handsome presents to the best sowers after the planting. When Rice is to be covered with water, without a previous covering of earth as described in the text, the seed must first be prepared by rolling it in clayed water, for process of which see a note to the Memoir on Rice, p. 16; Appendix to Ruffin's Agricultural Survey of South-Carolina: also the Supplement to the Proceedings of the State Agricultural Society. There are many planters who still prefer the old system, covering the seed with earth. In this case, after the seed

is forthwith admitted, (two tides are better than one,) and the field remains covered until the sprout becomes green and begins to fork. The water must then be withdrawn, else the plants will be forced to the surface, by any slight agitation, and float away from their position.*

In twenty days after, or thereabouts, the Rice is hoed

is covered, the water is taken on the field for five or six days, to sprout the grain, when it is drawn off, and is returned only when the sprout, "in the needle state," is seen fairly above ground. This, "the point-flow," is held about four days and then drawn off. After which the culture is the same as above described throughout.

* The reasoning for the successful substitution of a covering of water for a covering of earth in planting Rice, and also for the requisition of sound and perfectly full seed, will be found in the law of germination and growth.

Prof. Johnston thus expresses it: "When a seed is committed to the earth, if the warmth and moisture are favorable, it begins to sprout. It pushes a shoot upwards, it thrusts a root downwards; but until the leaf expands and the root has fairly entered the soil, the young plant derives no nourishment other than water, either from the earth or from the air. It lives on the starch and gluten contained in the seed."

In the case of Rice covered with water, the first shoot is radical and tends downwards, but it does not take root until the air is admitted to the leaf, the lungs of the plant, then it becomes rooted instantly. If the water be not reduced when the sprout becomes green (until the sprout is green it cannot bear the rays of the sun) the expanding of the leaf in the water will draw up the unfixed root and the whole will rise and float upon the surface.

The water, after floating the trash to the banks, should at no time be over deep, least the process of germination be delayed, and with any imperfect or defective grains be prevented altogether. I have known an entire sowing of a field lost by too deep flooding. The field which was rather low (reclaimed marsh) was sown early in April, and the water let on inconsiderately deep. At the end of sixteen days I had the water drawn, and not a seed had germinated. The land was occasionally subject to the influence of salt water, but the water used was entirely fresh and sweet. The field was replanted in same manner as before, and flowed under my personal supervision. The seed, selected from the same parcel, sprouted readily, and the field yielded an abundant return. This was in 1840.

In Georgia, on one of Dr. Daniels' plantations near Savannah, the Italian method has been pursued with a good degree of success, namely: The seed is first sprouted, then sown broad-cast over the field and covered up by the harrow, which, being reversed, is drawn over the surface. The culture there is with water chiefly. The planters on the Savannah river, where the land drains remarkably well, realize twelve per cent. from the proceeds of their crops.

and flowed deep, the water over-topping the plant for two or three days, in order to destroy the young grass just springing up among the plants, and also the insects that may have lodged upon the blades, or which may have been generated among the stumps or roots, or stubble. At the end of two or three days the water is slacked down to about half the height of the plant, now somewhat stretched. At this depth it is held until the plants grow strong enough to stand erect, and will admit the laborers to walk between the trenches and pull out the long grass which shows itself, and which will now yield to very slight effort. If any rushes appear they will now be plucked up by the root and borne out to the banks.

Two days after this weeding, the long water* will gradually be drawn off. A succeeding tide will be taken in and let off immediately, in order to wash out the ditches. Two men, furnished, each with a long-handled rake of curved iron teeth, are put to rake from the ditches all the water-growth which impedes the draining, placing it on the side of the bank. In eight days (the land by that time should be dry) the smaller hoest† are used, and the soil is stirred as deep as it can be with them. The plant just recovering from the

* In Georgia, and elsewhere perhaps, this is called the "stretch flow" In that State, as well as in some parts of Carolina, the practice is common to continue the point flow into the "stretch" or long flow, without drawing the water until the latter be over. This free use of water as it may be made to substitute one hoeing, may enable the planter to cultivate seven or eight acres to the hand, instead of five and six as of old. But, the proprietor who suffers this method to be practiced in his culture, year by year, if his young crop be not often troubled by the maggot or root worm, will probably find his land so polluted with water grasses after several years, and so packed as to require rest and change of system to ameliorate it.

† The hoe now used has been reduced, latterly, to four inches in breadth.

effects of long water, and taking a dry growth, is putting forth new green blades and fresh roots, which, not long enough yet to be interfered with by the deep hoing, very soon yield to the grateful influence of the air admitted, shoot vigorously into the loosened earth, and nourish a "good stalk."

In the course of fifteen or eighteen days, the field is hoed again and weeded. This last hoing is also done with the small hoes, but very lightly, to avoid disturbing the roots which are now extended nearly midway between the trenches.

As the plant is now beginning to joint, the laborers will step about with care, for if one be broken at the joint it cannot be restored. A day or two after this third hoing, the water is put on again, as deep as the last long-flow, and is gradually increased in depth after the rice-heads have fairly shot out.

This is called the "lay-by" flow.* Up to the time of this flow, is about ninety days for Rice sown the first week in April. After this, to the period of maturity is from sixty to seventy days, during which the water is often changed, and kept fresh,† but is never entirely withdrawn, until the grain be ripe for the harvest. Meantime, should any grass have escaped the previous hoings and weedings, it will show its crest before the

* Some planters have this flow very shallow, insisting that a deep flow breeds worms to the injury of the plant before it has shot out, in which case the only remedy is to dry.

† The improved and best means of keeping the water fresh is to furnish the field with two trunks—one to admit fresh water at every flood-tide, and the other to void it with the ebb, so that twice in twenty-four hours there is obtained a slight current through the field. This, besides lessening the infection of the atmosphere (miasmata) by stagnant water, keeps the roots of the plant cool and healthy, though it postpones the ripening of the Rice some five or eight days.

Rice matures, and be plucked up by the roots. All white Rice will be stripped off by hand.

HARVEST.

And now the grain is ripe for the sickle. The time for harvest is come. Gladsome, bounteous harvest! A season, it is true, of laborious exertion, but a season also of cheerful emulation, of rustic, joyous festivity. The Rice is cut a day before you will say it is fully ripe.* The water is drawn off over night. Soon after the rising of a bright autumn sun, the reapers are seen amid the thick hanging grain, shoulder-high, mowing it down with the old fashioned sickle, dealing brisk and dexterous, but noiseless strokes. Before the dew is all gone, the Rice is laid prostrate, even and orderly, across the porous stubble.

The next day, when quite dry of dew, it is tied up in sheaves, and borne away to the threshing yard, where it is well stacked before the night dew falls heavy.—This last heavy but gleeful labor completes the field-culture of the Rice plant.

When the stack has undergone its curing heat, and become cool again, the Rice is threshed out by one of Emmons' Patent Machines, and sent to the pounding mill to be cleaned. The mill performs ingeniously enough the finishing process, thus: By steam power, the rough-rice is taken out of the vessel which freights it, up to the attic of the building—thence through the sand-screen to a pair of (five feet wide) heavy stones, which grind off the husk—thence into large wooden

* For Rice sown 1st April the harvest begins usually from the 1st to the 10th of September.

mortars, in which it is pounded by large iron-shod pestles, (weighing 250 to 350 pounds,) for the space of some two hours, more or less.

The Rice, now pounded, is once more elevated into the attic, whence it descends through a rolling-screen, to separate whole grains from the broken, and flour from both; and also through wind-fans, to a vertical brushing screen, revolving rapidly, which polishes the flinty grain, and delivers it fully prepared, into the barrel or tierce, which is to convey it to market.*

The barrel is made by coopers attached to the mill. each one dresses his stuff and makes three barrels a day. He is paid twenty-five cents for each barrel made over his number. When the stuff is dressed previously, five barrels, and even more may be made.†

The profits of a Rice plantation of good size and locality, are about eight per cent. per annum, independent of the privileges and perquisites of the plantation residence. Privileges and perquisites, which are neglected or undervalued by absentee proprietors, if not absolutely thrown away.

* For information on Mills and Milling, see Allston's Memoir on Rice. Also Appendix to the same. D. E. F. Also, Report to Winyah and All Saints Agricultural Society, April 1843.

For other particulars and experiments in the culture of Rice, see sundry reports on the subject to the Patent Office Commissioner. Also, to the State Agricultural Society; Vol. of Proceedings, pp. 55, 88.

† The staves are of yellow pine, 40 inches in length; the heading of inch plank is made twenty-four inches in diameter. The barrel should contain at least six hundred pounds nett. The barrels from the Butler estate in Georgia, are much larger, weighing eight hundred pounds and more.

There were several Machines for dressing staves, exhibited at the World's Fair in New York. Class 5 and 6, Nos. 92, 184, (Hawkins'—this I saw in operation, and admired.) 334, 407.—Class 9, Nos. 11 and 14, are grain separators—aluable to rice-planters for preparing seed.

OF DRAINING AND MANURES.

The art of culture, however necessary, to be effectually taught by experience, and learned in practice, depends upon principles, for the knowledge of which we are indebted to science. In proportion as these are understood, and appreciated by farmers, will their system of practice be more or less improved. When a good system is applied with cheerful industry, patience, and perseverance, the grateful earth will seldom fail to yield her increase.

Light, heat, air and water, are the great fertilizers, furnished by bounteous Nature, for the intelligent use of man. Every plowing, every hoeing, every flooding of the fields, should be done in reference to the influence of one or more of these universal agencies.

Without good draining, the most thorough preparation of the surface, and subsoil, the most diligent labor after careful sowing, and the highest degree of manuring, will fail of producing the desired result. Water may be used so as partially to supersede its necessity in the culture of Rice; but, ultimately, it will be followed by evil effects on the land.

Manures of various kinds are freely used in Cotton planting; Guano, with plaster, and with Kettlewell's Salts, Mapes' preparation, and composts of litter with muck, marsh-mud, sedge, and sometimes salt.*

* Every stable whether for horses or cows, should be furnished with a tank, and conduits for the collection and preservation of liquid manures, otherwise so improvidently wasted.

Every Farm-pen also should be provided with some convenient receptacle for the same, which is greatly more valuable than the dung of the cattle. A ditch (four feet by three) cut along the inner end of the stalls for oxen and cows, all around the pen, and filled in with rice-straw, or leaves, or any thing else that will absorb the liquid voided, is a plan which I have found answer very well, and may do, for the want of a better. The ditch may be emptied once a month, and refilled with fresh straw.

In Rice-planting the practice of manuring* is of recent origin, excepting of course that best of all dressings, to which we are indebted for increment of the soil itself, the natural deposit, namely, of sediment when the rivers overflow their banks, or silt from seaward, when the turbid waters, admitted into the fields, are held there, undisturbed for days. A good time to apply rice-flour to Rice, is to scatter it between the trenches immediately after the long-flow.

If the dressing be too heavy, the Rice, made too luxuriant, will lodge, and waste in the harvest. In applying lime (100 bushels is safe, if there be plenty of stubble, or peaty fibre, or a thick native growth,) time should be given for it to act chemically and to become incorporated with the soil, before water is put on the land.

Rice-straw† if listed into the fallow ground, and well covered up with a bed of earth, will be decomposed by planting time, and make a fine manure, improving the crop in both quantity and quality.

* See Dr. Heriot's Report on Manuring Rice-land. Proceedings of Winyah and All Saints Agricultural Society, April 20th, 1848, p. 16.

Ravenel's Report on Manures. Proceedings of State Agricultural Society, p. 273. Patent Office Report on Manures, re-published in "Cotton Planter."

† In 1843, Mr. Ruffin, when treating of Manures in the low country (Agricultural Survey, p. 33,) said "there is almost no straw, except on Rice plantations and where it is mostly thrown away."

The worthy Surveyor was probably misled by observing the neglected barn-yard of some absentee, or some Island Estate, not having attached thereto any highland worth planting. The proprietor who should throw away his straw either then or now, would be deemed by his neighbors a loose and thriftless planter. It must be acknowledged, however, that since the publication of their Analysis by the Winyah and All Saints Agricultural Society, both the straw and chaff of Rice, have been preserved with more care, and used extensively in manuring both swamp and highland. Prior to the Analysis the *chaff* was mostly thrown away.

Dr. Edward T. Heriot, who originated the system of Manuring Swamp-land, with Rice straw, has not only turned it to good account in establishing his brand in the market, but has derived from it large aid in provisioning his plantation with Potatoes and Peas. He has furnished his neighbors not only with the example, but, the rule also, by which they are enabled to profit equally with himself.

Rice-chaff,* spread three or four inches thick over the fallow ground, and plowed in, will produce a like effect in course of time. It is not as readily decomposed as the straw, and may disappoint early expectation.

Rice-flour† is a still better, more stimulating dressing, but not so lasting in its effects. It may be applied (thirty bushels to the acre) broad-cast, and plowed in before planting, or it may be scattered between the trenches after the long water, as above described.

Now, as to the labor, by means of which these crops are raised—these important results, both commercial and national, are obtained, the produce of which pays for three-fourths of all imports into the country, (\$260,000,000). Our laborers are descendants of the African bondsmen given to our ancestors by the mother country at the same time that Indigo, and Rice and Cotton were sent to them to cultivate. They are well fed and clothed, well sheltered, and cared for in sickness, and during the infirmities and helplessness of old age. They are for the most part healthy, and cheerful, and, when well trained, are very efficient laborers.

The negroes have provided for them all the necessities of life in sufficient abundance. And they enjoy the privilege of procuring many comforts and indulgencies.

For Dr. Heriot's method and its results in 1843, see Supplement to Transactions of the State Agricultural Society. Memoir on Rice—Appendix C. Also Transactions of the State Agricultural Society, p. 57.

* For an Analysis of the offals of Rice—see a Report on the subject by Prof. Sheppard, to the Winyah and All Saints Agricultural Society, as published by that Society. It is re-published in the Supplement to the Volume of Transactions of the State Agricultural Society.

† For the constant experiment made with Rice-chaff and flour, we are indebted to the late Joshua John Ward, whose observation, judgment and energy, in managing his large Estate, were equaled by his humanity, hospitality, and willingness to communicate. The eminence which he attained as a Planter, the simplicity of his character, and the sterling qualities of heart, which gained him many

In every Christian neighborhood, the means are afforded of Missionary instruction in their duty to God and to man. On most well regulated plantations the young negroes are taught specially; and to all, the way of salvation is preached. In short, the educated master, is the negro's best friend upon earth. But it is not enough in all cases, that the preaching of the Gospel is provided for our negroes; they must be induced to seek an interest in it—they must be won to obedience to the divine law—to love the truth. Obviously the strongest inducement, is example on our own part; next, a just, consistent, systematic administration of domestic government. Nothing sooner attracts the confidence of the negro, and commands his respect, than the illustration, in a system of management, of justice, tempered by kindness. But enough—let us do our present duty, kind Providence will smile upon our efforts.

In proportion as we shall have performed well our mission, so may we, with trust and hope, bequeath our inheritance to posterity; and so may each of us, when prostrate under the hand of time, and hourly expecting the summons of the last messenger on earth, with humble confidence look up toward the bar of our common Judge.

friends, procured for him in 1851, on the part of the Legislature, the spontaneous offering of the honorary position of Lt. Governor of South Carolina—on which he retired from public life.

APPENDIX.

A.

St. Catharine's Island, January 21st, 1854.

DEAR SIR :

To ascertain with accuracy the amount of Sea-Island Cotton produced in Georgia, the production of each county should be known; and to acquire this information, reference should be made to intelligent individuals residing in each one, in the absence of statistics; but as this course has not been adopted, I necessarily had recourse to the Factor of the Planters of said counties. This estimate may be somewhat vague, but I would decide, that it approaches as near accuracy, as the data which has been assumed will admit of. It is computed that 11,300 bales of Sea-Island Cotton are produced in this State, weighing not less than 400 weight. I have assumed the maximum 6000 laborers—1000 white laborers, and 5000 negroes.

We will estimate the land cultivated by the former at \$400,000, and that cultivated by slaves at \$1,500,000. The whites producing 3000 bales, to the slaves 8,300 bales.

To form an accurate estimate of the value of the slave capital employed, we must embrace the old [negroes] and children, and double the number—say 10,000 slaves, whose marketable value is \$4,000,000. For the past 5 years Cotton has averaged 20c. per lb.

Value of land cultivated by slaves,.....	\$1,500,000
Value of slaves employed in its cultivation.....	4,000,000
	<hr/>
	\$5,500,000

8,300 bales of Cotton produced by slaves at 20 cts.

per pound,.....	\$664,000
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Expenses, (this estimate may fall below the cost,)	\$100,000
	<hr/>
	\$564,000

Adding to this estimate the yield exceeds 10 per cent.

It is not supposed that there is any deterioration of the capital employed, for every judicious Planter improves his lands by a judicious system. Keeps his buildings in good condition, and he

realises a *numerical* increase of his slaves, of from four to eight per cent from births. The increase of our negroes must be ascribed to their improved condition in all respects. They are better fed, their buildings are more comfortable, and they enjoy the benefits of the improved system of husbandry, which, whilst it lightens the physical labor, it enables the planter to apply them profitably to the improvement of his lands, by a judicious system of manuring, which is infinitely cheaper and more substantial, than any extraneous manures which come from abroad. The use of these implements, (my remarks are exclusively applied to Sea-Island Cotton Plantations) places it in the power of the Planter, to keep employed a part of his force the whole year, except when he is harvesting his crop, in collecting the material, and making manure. He possesses advantages which no other agriculturist enjoys, and if he does not avail himself of them, the fault rests with him, and I am inclined to believe that from this neglect, he does injustice to his negroes. If his crops are made in abundance, he has it in his power to expend a little more money for their comfort and certainly for his benefit.

I cannot but regret that circumstances beyond my control, have prevented my answering your letter before.

I am, very respectfully your obt. servt.

* * *

ROBERT W. ALLSTON,
Georgetown, So. Ca.

APPENDIX.

B.

The following Communication to the Daily Mercury of 17th Jan'y, 1849, from the pen of that eminent Naturalist, the Rev. Dr. BACHMAN, furnishes a reliable account of the Wild Rice of the Lakes.

MINNESOTA RICE.

MR. EDITOR: Several articles, under the above head, have, within the last few weeks, been going the rounds of the various Newspapers in the United States, and I perceive one of a similar character in the Mercury of yesterday morning, extracted from the Journal and Messenger.

From the accounts published by Prof. Randall, of Cincinnati, it would appear that this is "a new discovery of a new cereal grain in the Territory of Minnesota;" that "it is infinitely superior in taste, and far more nutritious than the Rice of the United States; grows abundantly as an indigenous production, and can be cultivated to almost any extent in the rivers and lakes that abound in that territory." Your western brother, the Editor of the Journal and Messenger, ventures the opinion, that "the Minnesota Rice will, in time, be found to be of infinitely greater value than the far-famed gold mines of California." The latter prediction may prove true.

Should our planters, however, from the above glowing descriptions, entertain any fears that this new western production should supplant the Carolina Rice, I would invite their attention to the few following facts:

The Minnesota Rice is the article known in our Northern, Western and some of our Southern States, under the name of "Wild Rice," "Zizania Aquatica;" sometimes it is called wild oats. It abounds in the rivers and lakes of Western New York, Pennsylvania,



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